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Kathy Manke Avago Technologies Limited 4380 Ziegler Road Fort Collins, CO 80525			EXAMINER BODDIE, WILLIAM	
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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* MARSHALL THOMAS DEPUE, TONG XIE,  
DOUGLAS M. BANEY, GREGORY D. VANWIGGEREN,  
and JAVIT A. DRAKE

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Appeal 2008-0385  
Application 10/612,655  
Technology Center 2600

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Decided: June 26, 2008

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Before JOSEPH F. RUGGIERO, MAHSHID D. SAADAT, and ROBERT  
E. NAPPI, *Administrative Patent Judges*.

SAADAT, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134 from the Examiner's Final Rejection of claims 1-20, which are all of the claims pending in this application. We have jurisdiction under 35 U.S.C. § 6(b).

Appellants' invention relates to an application for micro fuel cells as a lightweight power source for wireless optical navigation devices such as wireless optical mice. According to Appellants, micro fuel cells offer an environmentally friendly source of power with six months or more of typical use before refueling is required (Spec. 1). Claim 1 is illustrative of the claimed invention, and it reads as follows:

1. A wireless optical navigation device comprising:  
  
an optical position tracking system;  
  
a transmitter electrically coupled to said optical position tracking system; and  
  
a micro fuel cell electrically coupled to said transmitter and said optical position tracking system, said micro fuel cell capable of providing electrical power for said optical position tracking system and said transmitter.

The prior art references of record relied upon by the Examiner in rejecting the appealed claims are:

Koripella	US 6,387,559 B1	May 14, 2002
Derocher	US 6,476,795 B1	Nov. 5, 2002
Peng	US 6,686,903 B1	Feb. 3, 2004 (filed Jul. 28, 2000)
Freathy	US 6,774,797 B2	Aug. 10, 2004 (filed May 10, 2002)
Hirsch	US 6,924,055 B2	Aug. 2, 2005 (filed Feb, 27, 2002)

Claims 1-9 and 12-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Derocher in view of Koripella.

Claim 10 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Derocher in view of Koripella and Hirsch.

Claim 11 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Derocher in view of Koripella and Peng.

Claim 13 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Derocher in view of Koripella and Freathy.

We make reference to the Briefs and Answer for the respective details. Only those arguments actually made by Appellants have been considered in this decision. Arguments which Appellants could have made but did not make in the Briefs have not been considered and are deemed waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

We affirm.

## ISSUES

1. Under 35 U.S.C § 103(a), with respect to the appealed claims 1-9 and 12-20, would the ordinarily skilled artisan have found it obvious to modify Derocher with Koripella to render the claimed invention unpatentable?
2. Under 35 U.S.C § 103(a), with respect to the appealed claims 10, 11, and 13, would the ordinarily skilled artisan have found it obvious to modify Derocher and Koripella with Hirsch, Peng, or Freathy to render the claimed invention unpatentable?

## PRINCIPLES OF LAW

To reach a conclusion of obviousness under § 103, the Examiner bears the burden of producing a factual basis supported by a teaching in a prior art reference or shown to be common knowledge of unquestionable demonstration. Our reviewing court requires this evidence in order to

establish a prima facie case. *In re Piasecki*, 745 F.2d 1468, 1471-72 (Fed. Cir. 1984).

Furthermore, the test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. *See In re Kahn*, 441 F.3d 977, 987-88 (Fed. Cir. 2006), *In re Young*, 927 F.2d 588, 591 (Fed. Cir. 1991) and *In re Keller*, 642 F.2d 413, 425 (CCPA 1981).

“Section 103 forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1734 (2007).

“The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *Leapfrog Enter., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1161 (Fed. Cir. 2007) (quoting *KSR*, 127 S. Ct. at 1739). “One of the ways in which a patent’s subject matter can be proved obvious is by noting that there existed at the time of invention a known problem for which there was an obvious solution encompassed by the patent’s claims.” *KSR*, 127 S. Ct. at 1742.

The *KSR* Court further recognized that “[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp.” *KSR*, 127 S. Ct. at 1742. In such circumstances, “the fact that a combination was obvious to try might show that it was obvious under § 103.” *Id.*

“[A] reasonable expectation of success, not absolute predictability” supports a conclusion of obviousness. *In re Longi*, 759 F.2d 887, 897 (Fed. Cir. 1985). *See also In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (“Obviousness does not require absolute predictability.”).

## ANALYSIS

### *1. Rejection of Claims 1-9 and 12-20 over Derocher and Koripella*

The Examiner asserts (Ans. 3-4) that Derocher discloses all of the elements of claim 1, except for a micro fuel cell electrically coupled to and providing electrical power to the transmitter and the optical position tracking system. The Examiner relies on Koripella for teaching a micro fuel cell for powering handheld devices, which provides a longer battery life and decreased need for recharge, and concludes that it would have been obvious to include a micro fuel cell in the wireless mouse of Derocher (*id.*).

Appellants do not argue any of the teachings of Koripella asserted by the Examiner. Appellants only contest the propriety of combining Derocher’s wireless mouse with Koripella’s fuel cell. Specifically, Appellants contend (App. Br. 9-10) that while Koripella teaches a fuel cell, there is no teaching that the fuel cell is coupled to a transmitter and an optical position tracking system. We disagree with Appellants and as stated by the Examiner (Ans. 11), find that using the fuel cell of Koripella as the power source in the wireless mouse of Derocher would inherently couple the fuel cell to the components of the mouse.

Appellants further argue that the proposed combination changes the principle of operation of Derocher because a fuel cell is not rechargeable in

the manner the rechargeable battery is taught by Derocher (App. Br. 10-11). The Examiner responds by asserting that Koripella shows that the fuel cell is included in the wireless device in addition to the rechargeable battery, which reduces the need for carrying extra replacement batteries (Ans. 11-12). We agree with the Examiner and observe that Koripella does show a fuel cell in Figure 3 which is coupled to a portable electronic device, such as a cell phone 60, through DC-DC converter 62 and the rechargeable battery 64 (col. 5, l. 57 through col. 6, l. 6).

Appellants' next argument is directed to lack of motivation or suggestion to combine the references (App. Br. 11-12). Appellants specifically argue that the proposed motivation to lengthen the battery life does not exist since the rechargeable battery of Derocher eliminates any need for extended battery life (App. Br. 12-13). We again disagree with Appellants and observe that, consistent with the principles outlined in the *KSR* holding, one of ordinary skill in the art would have used a known solution for the recognized problem of short battery life which needs repeated recharging of the batteries or replacing the batteries. Furthermore, as asserted by the Examiner (Ans. 12-13), using a fuel cell in the wireless mouse of Derocher extends the length of time the mouse is used as well as the life of laptop battery since the rechargeable battery draws power from the laptop power source 18 which may be an internal battery. *See* col. 3, ll. 21-24.

Appellants further argue propriety of the proposed combination based on the contention that each reference represents a complete solution to the problem each solves (App. Br. 13). Appellants repeat the assertion addressed above regarding Derocher's solution for rechargeable batteries

and conclude that there is no need to further address extending the battery life (*id.*). Again, we agree with the Examiner (Ans. 14) that Derocher is still unable to use the recharged batteries indefinitely and, therefore, would benefit from Koripella's fuel cell in order to reduce the number of recharges. As such, Derocher provides a complete solution only to the extent that the laptop provides sufficient power to recharge the mouse batteries or the user is willing to carry a supply of replacement batteries (col. 2, ll. 48-54).

In addressing Appellants' hindsight argument (App. Br. 13-14), we find that Koripella describes fuel cells as "battery replacements" (col. 1, ll. 13-15) for powering portable electronic devices, such as cell phones (col. 6, ll. 2-6). Therefore, we also agree with the Examiner's reasoning that one of ordinary skill in the art, faced with the need for a rechargeable mouse on Derocher, would have considered other power sources such as the fuel cell of Koripella (Ans. 14-15).

Appellants further argue that one of ordinary skill in the art would not have combined Derocher and Koripella since they address different problems (App. Br. 14-17). Appellants assert that powering hand-held electronic devices is not sufficient to justify the combination since Derocher solves the problem of rechargeable batteries in a wireless mouse, wherein Koripella is concerned with miniaturizing fuel cells (App. Br. 15-16). For similar reasons discussed above, we also agree with the Examiner that the combination of Derocher and Koripella is proper since both references are concerned with "providing a rechargeable and long lasting power supply to a handheld wireless portable device" (Ans. 15-16).

Lastly, Appellants assert that the claimed subject matter is unobvious since micro fuel cells and wireless portable tracking devices have been



known for decades, but no one combined them (App. Br. 17-19). We find that Koripella recognizes the need for miniaturization of fuel cells before such power sources can be used in portable device applications (col. 1, ll. 58-65). Koripella provides a solution for fabricating a miniaturized direct methanol fuel cell based on recirculating water/methanol mixture (col. 4, ll. 11-14; col. 6, ll. 6-14) for providing power, in conjunction with a DC-DC converter and a rechargeable battery, to a cell phone. (See Figure 3, col. 5, l. 57 through col. 6, l. 14). Therefore, as argued by the Examiner (Ans. 17), the fuel cell of Koripella provides a small power source with no damaging exhaust, suitable for portable devices such as the wireless mouse of Derocher.

In view of our analysis above, we find that the teachings of Derocher and Koripella, when considered as a whole, support the Examiner's § 103 ground of rejection. In that regard, we find that using the miniaturized fuel cell of Koripella in the wireless optical navigation device of Derocher is no more than the predictable use of a known element according to its established function of providing more durable source of power. Thus, we sustain the 35 U.S.C. § 103(a) rejection of claim 1, as well as claims 2-9 and 12-20 argued together with claim 1, over the teachings of Derocher and Koripella.

*2. Rejection of Claims 10, 11, and 13 over Derocher and Koripella in view of Hirsch, Peng, or Freathy*

Appellants do not argue any of the rejections based on the combination of these references. We find the Examiner's rejections based on the additional references to Hirsch, Peng, and Freathy to be reasonably based on the factual findings outlined in the Answer, which remain unrebutted by

Appellants. Therefore, as the Examiner has set forth a prima facie case of obviousness and for the same reasons discussed above with respect to claim 1, we sustain the rejection of claim 10 over Derocher, Koripella, and Hirsch, of claim 11 over Derocher, Koripella, and Peng, and of claim 13 over Derocher, Koripella, and Freathy.<sup>1</sup>

### CONCLUSION

Because Appellants have failed to point to any error in the Examiner's position, we sustain the 35 U.S.C. § 103 rejection of claims 1-20.

### ORDER

The decision of the Examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

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<sup>1</sup> The Examiner seems to have taken inconsistent positions with respect to claim 13. Claim 13 is included together with the claims rejected on Derocher and Koripella, but also separately rejected with the addition of Freathy.

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Application 10/612,655

AFFIRMED

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